

Appl. No. 10/713,231

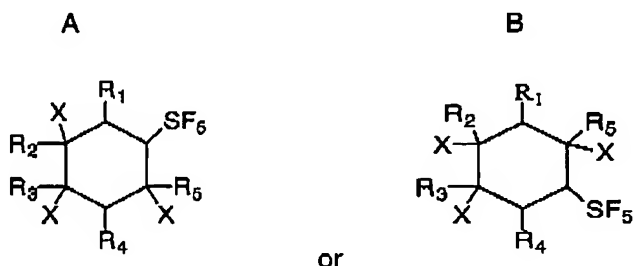
Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

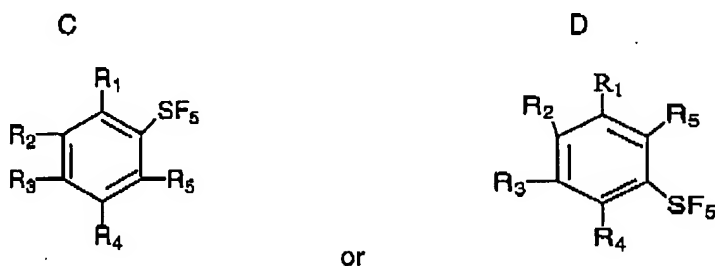
Listing of Claims:

1. (Currently Amended) A process for making pentafluorosulfuranyl arylenes which comprises:

effecting dehydrohalogenation or dehydrogenation of a halogenated pentafluorosulfuranyl cycloaliphatic compound represented by either of the structures:



to form pentafluorosulfuranyl arylene compounds represented by either of the structures:

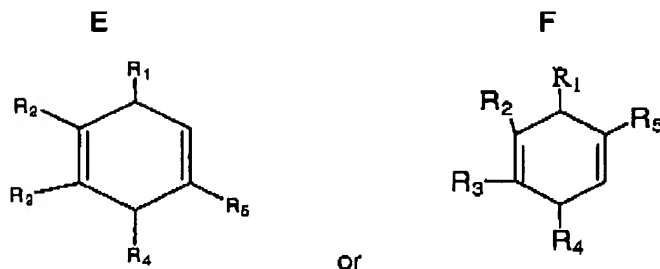


wherein R₁₋₅ are H, halogen, ~~e.g., Cl, or Br~~; C₁₋₁₀ alkyl, C₁₋₁₀ alkoxy, C₁₋₁₀ thionyl, C₁₋₁₀ alkyl ether, aryl and substituted aryl, thioether, sulfonyl, carboalkoxy, alkylamino, arylamino, alkylphosphoryl, alkylphosphonyl, ~~aryloxy~~ aryloxy, arylphosphonyl, and arylphosphoryl etc and mixtures thereof and X is a halogen atom.

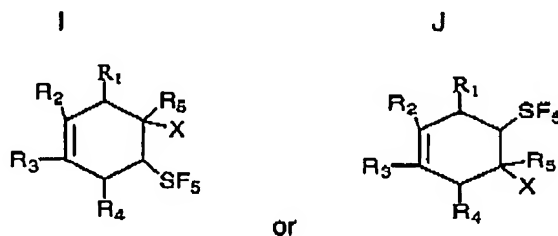
2. (Original) The process of Claim 1 wherein R₁₋₅ are H.

Appl. No. 10/713,231

- 3 (Original) The process of Claim 2 wherein X is selected from the group consisting of Br and Cl or a mixture thereof.
4. (Original) The process of Claim 3 wherein compounds C and D are formed by effecting dehydrohalogenation of compounds represented by the structures A or B.
5. (Original) The process of Claim 4 wherein X is bromine.
6. (Currently Amended) The process of Claim 5 wherein dehydrohalogenation is effected by reaction of compounds represented by the structures ~~represented by the~~ structures A and B with powdered- sodium hydroxide.
7. (Currently Amended) The process of Claim 1 wherein the halogenated pentafluorosulfuranyl cycloaliphatic compounds for forming the pentafluorosulfuranyl arylenes are formed by a two step process which comprises:
- (a) reacting SF_5X with a compound represented by either of the structures:



leading to the formation of compounds represented by either of the structures:



wherein R_{1-5} are H, halogen, e.g., Cl, or Br; C_{1-10} alkyl, C_{1-10} alkoxy, C_{1-10} thionyl-, C_{1-10} alkyl ether, aryl and substituted aryl, thioether, sulfonyl, carboalkoxy, alkylamino, arylamino,

Appl. No. 10/713,231

alkylphosphoryl, alkylphosphonyl, ~~aryphosphonyl~~, arylphosphonyl, and arylphosphoryl etc and mixtures thereof and X is Br or Cl.

and then,

(b) halogenating the thus formed compounds represented by the structures I and J produced in step (a) by reaction with Cl_2 , Br_2 , or I_2 to form the halogenated pentafluorosulfuranyl cycloaliphatic compounds represented by the structures A and B.

8. (Original) The process of Claim 7 wherein R_{1-5} are H.

9. (Original) The process of Claim 8 wherein step (a) is carried out using SF_6Br as the reactant.

10. (Original) The process of Claim 9 wherein a free radical initiator is used to catalyze the reaction of SF_5Br with compound represented by the structures E or F.

11. (Original) The process of Claim 10 wherein the free radical initiator is triethyl borane.

12. (Original) The process of Claim 11 wherein halogenation in step (b) is carried out using Br_2 as the halogenating agent.

13. (Original) The process of Claim 12 wherein compounds represented by the structures C and D are formed by effecting dehydrohalogenation of compounds represented by the structures A and B by reaction with powdered sodium hydroxide.

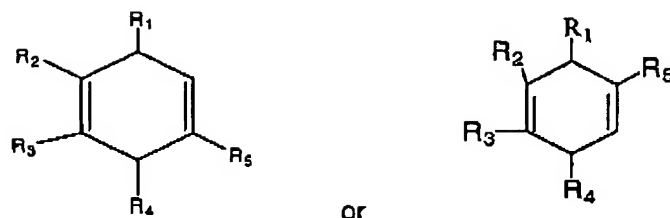
14. (Currently Amended) The process of Claim 1 wherein the halogenated pentafluorosulfuranyl cycloaliphatic compounds for forming the pentafluorosulfuranyl arylenes are formed by a two step process which comprises:

(a) halogenating a compound represented by the structures:

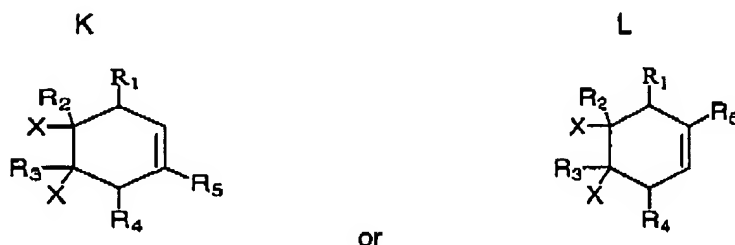
E

F

Appl. No. 10/713,231



leading to the formation of compounds represented by the structures:



wherein R_{1-5} are H, halogen, ~~e.g., Cl, or Br~~, C_{1-10} alkyl, C_{1-10} alkoxy, C_{1-10} thionyl-, C_{1-10} alkyl ether, aryl and substituted aryl, thioether, sulfonyl, carboalkoxy, alkylamino, arylamino, alkylphosphoryl, alkylphosphonyl, aryphosphonyl, arylphosphonyl, and arylphosphoryl etc and mixtures thereof and X is Br or Cl.

and then,

(b) reacting the thus formed compounds K and L produced in step (a) by reaction with SF_6X to produce compounds represented by the structures A or B.

15. (Original) The process of Claim 14 wherein R_{1-5} are H and X is Br.

16. (Original) The process of Claim 15 wherein step (a) is carried out using SF_5Br as the reactant and a free radical initiator is used to catalyze the reaction of SF_5Br with the compounds represented by the structures K or L.

17. (Original) The process of Claim 16 wherein the free radical initiator is triethyl borane.

Appl. No. 10/713,231

18. (Original) The process of Claim 16 wherein C and D are formed by effecting dehydrohalogenation of compounds represented by the structures K and L by reaction with powdered sodium hydroxide.